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EUROPEAN PATENT APPLICATION

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(54) Printing wiring board and assembly of the same

(57) A printed wiring board (PWB) and assembly are described which are suitable for high density mounting of an electronic component and which can provide a thin and light assembly. A recess (10) is formed in one part of a PWB (1) and components (4, 4') are received in this recess (10). The components (4, 4') are lower than the surface of the PWB (1). A conductive pad (3) is provided to the bottom of the recess (10) and a connect-

ing terminal (4a) and the conductive pad (3) are electrically connected by using a solder ball (11) or a conductive adhesive material. The recess (10) is formed by partially removing one or more layers of plural conductive layers and insulating layers which make up the multilayer PWB (1).

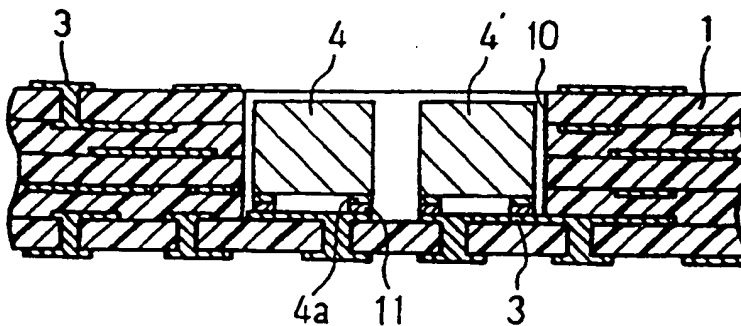


FIG. 9

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DOCUMENTS CONSIDERED TO BE RELEVANT			
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X	--- EP 0 607 532 A (JAPAN RADIO CO.) 27 July 1994 * figure 12 *	10-12	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
Y	--- -/--	13	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 17 July 1998	Examiner Mes, L
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			



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Place of search THE HAGUE		Date of completion of the search 17 July 1998	Examiner Mes, L	
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A	US 4 188 513 A (MORRELL ET AL.) 12 February 1980 * abstract; figures *	25	
A	DE 33 46 461 A (SIEMENS AG) 4 July 1985 * abstract; figures *	25	
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The present search report has been drawn up for all claims			
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A	<p>DATABASE WPI Week 8536 Derwent Publications Ltd., London, GB; AN 85-221479 XP002071894 & JP 53 070 425 A (TOPPAN PRINTING CO) , 22 June 1978 * abstract *</p> <p>-----</p>	29	
			<p>TECHNICAL FIELDS SEARCHED (Int.Cl.6)</p>
The present search report has been drawn up for all claims			
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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



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LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirement of unity of invention and relates to several inventions or groups of inventions, namely:

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1. Claims 1-9: Component thinner than printed wiring board in opening of printed wiring board
2. Claims 10-13: Multilayer printed wiring board having recess by laminating
3. Claims 14-24: Component connected to pads on bottom portion of recess in printed wiring board
4. Claims 25-29: Printed wiring board having vibration film over recess

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